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EXAMINER	
TON, ANTHONY T	

ART UNIT	PAPER NUMBER
2661	6

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/817,073	MATSUOKA ET AL.	
	Examiner	Art Unit	
	Anthony T Ton	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 March 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3, 4 and 5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because **Figure 1** fails to show "**a switching apparatus 1**" as described in page 2 line 24, and page 3 lines 3 and 8 in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

Term "**five multicasting packets**" in page 11 lines 12-13 is improper because it is not associated with the unicasting frame.

Examiner suggests changing this term to "**five unicasting packets**".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1-13** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. **Claims 1, 4, 7, 10, 11 and 12** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

in the preamble of claims 1, 4, 7, 10 and 11 recite a buffer unit, and claim 12 recites a switching apparatus for fragmenting **variable-length packets** into **fixed length packets** for processing units of fixed-length packets as described in Figs.2, 7 and 10. However, in these figures show a Header Extracting section 20, and accordingly in page 9 lines 8-11 of the specification, the Applicants disclosed the function of such a Header Extracting section 20 as follows:

"The header extracting section 20 extracts destination information from a packet header of **an arriving fixed-length packet** (hereinafter simply referred to as a packet)."

Based on this disclosure, a packet, which arrives at the unit buffer or the switching apparatus, has already been a fixed-length packet. Therefore, this disclosure does not have any cooperative relationships with the subject matter as set forth in the preamble of these claims.

6. **Claims 2, 3, 5, 6, 8, 9 and 13** also claimed a claimed variable-length packet. This claimed subject matter is the same as the discrepancy that was described in the claims 1, 4, 7, 10, 11 and 12 above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. **Claims 1, 2, 7, 8 and 11-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mizukoshi et al.** (US Patent No. **5,825,767**) in view of **Calvignac et al.** (US Patent No. **6,714,562**) hereinafter referred to as Mizukoshi and Calvignac respectively.

a) **In Regarding to Claim 1**: **Mizukoshi disclosed** a buffer unit for fragmenting packets into fixed-length packets for processing in units of fixed-length packets, comprising:

fixed-length packet storing means for storing the fixed-length packets for each of output paths *(see Figs.1 and 2: Shared buffer 11)*;

multicasting processing means for storing multicasting packets having a plurality of destinations, and transferring the multicasting packets to said fixed-length packet storing means depending on the plurality of destinations *(see Fig.5: 471-47N, 15 and 11);* and

control means for monitoring a storage state of said fixed-length packet storing means *(see Figs.2: blocks 17, 25 and 22).*

Mizukoshi failed to explicitly disclose fragmenting variable-length packets into fixed-length packets and the control means carrying out a control so that the multicasting packets are transferred within a variable-length packet formed by a plurality of fixed-length packets.

Calvignac disclosed such fragmenting variable-length packets into fixed-length packets and the control means carrying out a control so that the multicasting packets are transferred within a variable-length packet formed by a plurality of fixed-length packets *(see abstract, Fig.1, col.1 lines 13-17, and col.7 lines 55-59).*

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such fragmenting variable-length packets into fixed-length packets and the control means carrying out a control so that the multicasting packets are transferred within a variable-length packet formed by a plurality of fixed-length packets, as taught by Calvignac with Milzukoshi, so that variable-length frames of unicasting packets or multicasting packets can be fragmented into ATM packets in a purpose of sending successive frames to the same destination or different destinations. **The motivation** for doing so would have been to save bandwidth in communication networks *(see col.1 line 66 – col.2 line 2).* Therefore, it would have been obvious to combine Calvignac with Milzukoshi in the invention as specified in the claim.

b) **In Regarding to Claim 7**: the claimed subject matters of this claim are the same as that of claim 1, **except for** temporary storing means for storing the fixed-length packets and outputting a plurality of fixed-length packets forming a single variable-length packet after the plurality of fixed-length packets are received.

However, **Milzukoshi** also disclosed such temporary storing means *(see Fig.2: 12)*. Therefore, the rejection to claim 1 would also apply to this claim.

c) **In Regarding to Claims 2 and 8**: **Mizukoshi disclosed** all aspects of this claim as set forth in claims 1 and 7, respectively; and

Mizukoshi further disclosed the buffer unit, further comprising:

multicasting packet storing means for storing the multicasting packets having the plurality of destinations *(see Fig.2: 16 and 11)*, and transferring the plurality of multicasting packets to said multicasting processing means after a plurality of multicasting packets forming a single packet are received *(see Fig.5 : 17, 471-47N, 151-15N, and 11)*.

Mizukoshi failed to explicitly disclose a plurality of multicasting packets forming a single variable-length packet. However, this claimed subject matter was described in the claims 1 and 7. Therefore, the rejection to claims 1 and 7 would also apply to these claims for the same reasons.

d) **In Regarding to Claim 11**: the claimed subject matters of this claim are the same as that of claim 7, **except for** the claimed subject matter of outputs of said first storing means and said multicasting processing means being switched in units of a variable-length packet which is formed by a plurality of fixed packets.

However, this claimed subject matter is similar to that in the last part that was disclosed in the claim 1. Therefore, the rejection to claims 1 and 7 would also apply to this claim for the same reasons.

e) **In Regarding to Claim 12**: **Mizukoshi disclosed** a switching apparatus for fragmenting packets into fixed-length packets for processing in units of fixed-length packets, comprising:

an input buffer section receiving multicasting packets having a plurality of destinations or unicasting packets having a single destination *(see Fig.2: 12, 21, 25, 22, 23, 17 and 11)*;

a switching section switching the multicasting packets or the unicasting packets received from said input buffer section depending on the destination of each packet *(see Fig.1)*; and

an output buffer section receiving fixed-length packets from said switching section depending on output paths, and defragmenting the fixed-length packets into packets, said input buffer section outputting a plurality of fixed-length packets in units of a packet which is formed by a plurality of fixed-length packets *(see Figs.2: 15, 31, 11 and 13).*

Mizukoshi failed to explicitly disclose fragmenting variable-length packets into fixed-length packets, and a variable-length packet that is formed by a plurality of fixed-length packets.

Calvignac disclosed such fragmenting variable-length packets into fixed-length packets, and such a variable-length packet that is formed by a plurality of fixed-length packets *(see abstract, Fig.1, col.1 lines 13-17, and col.7 lines 55-59).*

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such fragmenting variable-length packets into fixed-length packets, and such a variable-length packet that is formed by a plurality of fixed-length packets, as taught by Calvignac with

Mizukoshi, so that variable-length frames of unicasting packets or multicasting packets can be fragmented into fixed-length packets in a purpose of sending successive frames to the same destination or different destinations. **The motivation** for doing so would have been to save bandwidth in communication networks *(see col.1 line 66 – col.2 line 2)*. Therefore, it would have been obvious to combine Calvignac with Mizukoshi in the invention as specified in the claim.

f) **In Regarding to Claim 13**: **Mizukoshi disclosed** all aspects of this claim as set forth in claim 12; and

Mizukoshi further disclosed a buffer unit for fragmenting packets into fixed-length packets for processing in units of fixed-length packets, comprising:

fixed-length packet storing means for storing the fixed-length packets for each of output paths *(see Figs.1 and 2: Shared buffer 11)*;

multicasting processing means for storing multicasting packets having a plurality of destinations, and transferring the multicasting packets to said fixed-length packet storing means depending on the plurality of destinations *(see Fig.5: 471-47N, 15 and 11);* and

control means for monitoring a storage state of said fixed-length packet storing means *(see Figs.2: blocks 17, 25 and 22)*.

Mizukoshi failed to explicitly disclose fragmenting variable-length packets into fixed-length packets and the control means carrying out a control so that the multicasting packets are transferred within a variable-length packet formed by a plurality of fixed-length packets.

Calvignac disclosed such fragmenting variable-length packets into fixed-length packets and the control means carrying out a control so that the multicasting packets are transferred

within a variable-length packet formed by a plurality of fixed-length packets *(see abstract, Fig.1, col.1 lines 13-17, and col.7 lines 55-59).*

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such fragmenting variable-length packets into fixed-length packets and the control means carrying out a control so that the multicasting packets are transferred within a variable-length packet formed by a plurality of fixed-length packets, as taught by Calvignac with Milzukoshi, so that variable-length frames of unicasting packets or multicasting packets can be fragmented into ATM packets in a purpose of sending successive frames to the same destination or different destinations. **The motivation** for doing so would have been to save bandwidth in communication networks *(see col.1 line 66 – col.2 line 2).* Therefore, it would have been obvious to combine Calvignac with Milzukoshi in the invention as specified in the claim.

9. **Claims 4, 5 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mizukoshi et al.** (US Patent No. **5,825,767**) in view of **Calvignac et al.** (US Patent No. **6,714,562**) as applied to claims 1, 2, 7, 8 and 11-13 above, and further in view of **Harriman et al.** (US Patent No. **5,898,687**) hereinafter referred to as **Harriman** (Note: this Prior Art was provided by the Applicant via IDS #5).

a) **In Regarding to Claim 4**: the claimed subject matters of claim 4, which differ from that of claim 1, are following:

a fixed-length packet storing means including first and second packet storing sections; and a control means carrying out a control so that reading from said first and second packet storing sections.

However, Mizukoshi inherently disclosed such a control means carrying out a control so that reading from said first and second packet storing sections because **Mizukoshi disclosed** single-cast packets and multi-cast packets that are stored in the shared buffer 11 *(see col.4 line 55 – col.5 line 6),* and the addresses of such packets are read into the address buffers 151 to 15N of the address buffer 15 by the multi-cast controller 22 as shown in Fig.2.

Mizukoshi failed to clearly disclose a fixed-length packet storing means including first and second packet storing sections.

Harriman clearly disclosed such a fixed-length packet storing means including first and second packet storing sections *(see Fig.3: unicast storing section and multicast storing section).*

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such a fixed-length packet storing means including first and second packet storing sections, as taught by Harriman with Milzukoshi, in order that single-cast packets and multi-cast packets can be stored in different storages. **The motivation** for doing so would have been to provide a novel fair-sharing arbitration policy in communication networks *(see col.3 lines 39-41).* Therefore, it would have been obvious to combine Harriman with Milzukoshi in the invention as specified in the claim.

b) **In Regarding to Claim 5**: **Mizukoshi disclosed** all aspects of this claim as set forth in claim 4; and

Mizukoshi further disclosed the buffer unit, further comprising:

multicasting packet storing means for storing the multicasting packets having the plurality of destinations *(see Fig.2: 16 and 11)*, and transferring the plurality of multicasting

packets to said multicasting processing means after a plurality of multicasting packets forming a single packet are received *(see Fig.5 : 17, 471-47N, 151-15N, and 11).*

Mizukoshi failed to explicitly disclose a plurality of multicasting packets forming a single variable-length packet. However, this claimed subject matter was described in the claim 4. Therefore, the rejection to claim 4 would also apply to this claim for the same reasons.

c) **In Regarding to Claim 10**: the claimed subject matters of this claim are the same as that of claim 7, **except for:**

queue length managing means for managing a first sum total of a number of addresses and a number of virtual addresses stored in said fixed-length packet storing means for each of the output paths, and a second sum total of the number of addresses and a number of the addresses of the multicasting packets,

said first sum total being used for packet cancel control, said second sum total being used for packet contention control.

However, **Milzukoshi** also disclosed such queue length managing means *(see Fig.2: 32; Fig.3; col.7 lines 8-41; and col.11 lines 2-12).*

Mizukoshi failed to explicitly disclose said first sum total being used for packet cancel control, said second sum total being used for packet contention control.

Harriman disclosed such said first sum total being used for packet cancel control, said second sum total being used for packet contention control *(see col.7 lines 12- 55 and col.5 line 49 – col.6 line 67).*

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such first sum total being used for packet cancel control, said second sum total being

used for packet contention control, as taught by Harriman with Milzukoshi, in order to determine whether a unicast or multicast packet address is selected for processing arriving packets in an ATM network properly. **The motivation** for doing so would have been to produce the required number of replicated packets prior to releasing the contents of data in a shared memory, and provide unicast or multicast output queue pair for each of predetermined priority level. Therefore, it would have been obvious to combine Harriman with Milzukoshi in the invention as specified in the claim.

10. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Harriman et al.** (US Patent No. **5,898,687**) in view of **Calvignac et al.** (US Patent No. **6,714,562**).

Harriman disclosed a switching apparatus for fragmenting packets into fixed-length packets for processing in units of fixed-length packets *(see Fig.1),* comprising:

an input buffer section receiving multicasting packets having a plurality of destinations or unicasting packets having a single destination *(see Fig.1: 120 and 112; Fig.2: 210)*;

a switching section switching the multicasting packets or the unicasting packets received from said input buffer section depending on the destination of each packet *(see Fig.2: 250)*; and

an output buffer section receiving fixed-length packets from said switching section depending on output paths, and defragmenting the fixed-length packets into packets, said input buffer section outputting a plurality of fixed-length packets in units of a packet which is formed by a plurality of fixed-length packets *(see Fig.1: 130, 122, 112 and 116; Figs.2: 230).*

Harriman failed to explicitly disclose fragmenting variable-length packets into fixed-length packets, and a variable-length packet that is formed by a plurality of fixed-length packets.

Calvignac disclosed such fragmenting variable-length packets into fixed-length packets, and such a variable-length packet that is formed by a plurality of fixed-length packets *(see abstract, Fig.1, col.1 lines 13-17, and col.7 lines 55-59).*

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such fragmenting variable-length packets into fixed-length packets, and such a variable-length packet that is formed by a plurality of fixed-length packets, as taught by Calvignac with Harriman, so that variable-length frames of unicasting packets or multicasting packets can be fragmented into fixed-length packets in a purpose of sending successive frames to the same destination or different destinations. **The motivation** for doing so would have been to save bandwidth in communication networks *(see col.1 line 66 – col.2 line 2).* Therefore, it would have been obvious to combine Calvignac with Harriman in the invention as specified in the claim.

Allowable Subject Matter

11. **Claims 3 6 and 9** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. **Claims 3, 6 and 9** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Examiner Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony T Ton whose telephone number is 703-305-8956. The examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Olms can be reached on 703-305-4703. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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8/22/04

Phirin Sam